U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION II
Emergency and Remedial Response Division
Program Support Branch
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MEMORANDUM

TO: Tanya Mitchell, Remedial Project Manager, Mega Projects Branch
FROM: Katherine Mishkin, Hydrogeologist, Program Support Branch, Technical Support Team
DATE: February 28, 2012
SUBJECT: Rolling Knolls SCR comments

General comments:

1) Although notable data gaps are evident in the Site Characterization Report, there are sufficient data to move forward with remedial investigations. These data gaps are outlined below and can be addressed after the remedy has been selected in a pre-design investigation.
2) It should also be noted that any suggested amendments can be incorporated in a RI report rather than a revised SCR.
3) Please provide EPA with an Electronic Data Deliverable (EDD) submittal of all recent data following the step-by-step instructions provided in the EPA Region 2 EDD webpage. http://www.epa.gov/region2/superfund/medd.htm
4) Considering the multitude of surface water bodies and the shallow expression of the water table, there is a major gap in understanding the relationship of surface water and groundwater interactions at this site. It is very likely that the surface water is often an expression of the groundwater. Furthermore, the cross-sections indicate the water in the ponds is a continuum of groundwater, which is inconsistent with the description of “isolated” ponds that are described as separate from the groundwater. The text describes ponds water as being derived from precipitation and runoff from the surface of the landfill. However, it is unclear how this conclusion was ascertained. Additionally, lithologic data does not support that water in the ponds is perched and separated from the surrounding groundwater system. It is more likely that all surface water is at least a partial expression of groundwater, and although it is possible that a large component of the ponds is from precipitation and runoff, complete isolation from the groundwater is unlikely. Please resolve these inconsistencies, amend the description of the pond water, and provide more detailed information on the conceptual description for the surface water and groundwater interactions at the site.

5) It is unclear why figures showing soil and groundwater sample results are being compared to non-residential criteria. It is suggested that data are compared against impact to groundwater (IGW) values, considering the shallow groundwater table at the site and the likely surface and groundwater interactions that are occurring in this wildlife refuge area. However, given that IGW values are not promulgated, the recommendation is only that lower remediation (i.e. non-residential, ecological) standards should be utilized as comparison values for soils in the landfill.

Data gaps:

6) The boundary of the landfill has been delineated by qualitative observations of test pits and surface debris, with the exception of 3 samples from all the test pits, while quantitative data reveals numerous soil sample locations with exceedences of the New Jersey non-residential remediation standards along the outer edges of this landfill boundary. While the appropriated delineation of the landfill is not being refuted since it is determined based on visual debris, insufficient evidence is available to fully understand the extent of contamination. In other words, the third bulleted objective (page 9) of the RI/FS has not been achieved. There are several soil samples that show evidence of contamination exceeding the NJ non-residents. standards, but data gaps exist both laterally and vertically beyond these sample locations. Common practice when detecting exceedences above screening criteria, is to perform a step-out approach in order to determine the extent of contamination.
    i. For example, SS-36 and SS-40 indicate that there are exceedences of Pb, various SVOCs, pesticides (SS-40 only), and PCBs at the 0-1 ft interval. However, no additional step-outs, neither laterally westward nor vertically, from these soil locations have been collected to better understand the extent of these exceedences. MW-10 and X-7 are monitoring wells in closest proximity to this area of concern. X-7 was not actually sampled (although it is shown to appear as though there were no exceedences) while MW-10 showed exceedences in VOCs and metals, meaning the source of these soil hits may be on the outer edges of this landfill boundary and likely in the area where waste and debris were observed on the ground surface. In order to evaluate whether this area is impacting groundwater, temporary monitoring wells should be placed to the west of these sampling locations. If contamination is found to exceed screening criteria, appropriate locations for additions to the permanent monitoring well network will be assessed. This may also be an appropriate location for SPLP analyses.
    ii. This critique is also applicable to the northeast boundary where SS-39 and SS-44 reveal concentrations of SVOCs (SS-39 only), PCBs, and Pb above screening criteria and again there are no lateral or vertical step-outs delineating the extent of this contamination. According to groundwater flow depictions in this area, monitoring wells X-1 and X-5 are sidegradient of these exceedences and there are no groundwater monitoring wells downgradient of these soil locations. Considering the shallow water table at this site, it is unclear whether these concentrations are serving as a continuous source of contamination to the groundwater. In order to close this data gap and determine if this is a source of groundwater contamination, further delineation is necessary. It is recommended that multiple temporary wells are installed at the landfill boundary

between X-1 and X-5 to determine if contamination is bypassing the current monitoring network in this specified area. If contamination is found to exceed screening criteria in any temporary wells, appropriate locations for additions to the permanent monitoring well network will be assessed. A separate call can be arranged to discuss specific temporary well sampling points. This may also be an area where SPLP analyses may be appropriate.

iii. Similar to the comments above, a major data gaps remains at the southeast boundary of the landfill since samples SS-118-SS124 reveal exceedences of PCBs, Pb, As, and pesticides and the area was not further investigated further laterally nor vertically beyond 1 ft bgs. MW-2 is the closest well in proximity, but is it greater than 300 ft and sidegradient of this area. As suggested above, temporary well locations are important for this area to eliminate the concern for contaminated groundwater bypassing the current monitoring well network. Temporary wells should be situated downgradient of these sampling locations and contingent on analytical results, the necessity for additions to the permanent monitoring well network will be assessed.

iv. MW-3 is the monitoring revealing the greatest exceedences in contaminants of concern. Given that the nearest monitoring well downgradient of MW-3 is MW-4, which is separated by an unsampled surface water body and the next closest well is greater than 1000 ft downgradient of MW-3, the pathway for contaminant groundwater migration is unclear. Most importantly, it is recommended that the sediment and surface water samples are collected from the open water situated directly downgradient of this well. It is additionally recommended that a temporary well is collected downgradient of MW-3 and north of the surface water body as well as to the south side of the surface water body to ensure contaminated groundwater is not being bypassed by the current monitoring network. The potential to include additional permanent monitoring wells will be contingent on temporary monitoring well results. This may also be an area to bias SPLP sampling locations.

7) Considering the limited groundwater monitoring data that is available around the landfill, it is suggested that SPLP analyses are conducted to gain a better idea for potential leachability of soils, since they remain a source for groundwater contamination. See suggested areas above. It is also important to collect an SPLP sample from an area that is minimally impacted to in order to " maximize the likelihood that a graph of the SPLP results versus the corresponding total contaminant concentrations will provide a sufficient scatter of data points allowing for clear depiction of where the leachability threshold exists to provide a range of values" (SPLP guidance).

8) In general, it would be helpful if all sampling points were included in figures. For future submittals, please include MW locations on soil, sediment, and surface water figures, and most importantly on figures depicting sampling results. For example, Figure 25A showing soil sampling results that exceed NJ remediation criteria, would be more meaningful if the locations for MWs (not the sampling results) were also included in the figure in order to provide a better frame of reference for the overall conceptual understanding of the site that is characterized.

Specific comments:

1) Section 2.5.3 “Monitoring Well Development/Redevelopment” – This section states that monitoring wells X-3 and X-7 were not redeveloped due to either wet conditions or dry conditions in the wells, respectively. It is unclear whether X-3 was redeveloped at a later date prior to sampling and therefore properly reflective of true groundwater conditions. Also, since X-7 has not been sampled, there should be a note in the legend on figures depicting that this well that it is not part of the monitoring network. Simply placing it on the Figure that shows groundwater exceedences is misleading because it inaccurately appears as a clean well, when in reality the groundwater conditions in this area are unknown.
2) Section 3.5.1.1 “Ponds” – page 65 – The ponds are described as isolated and that they receive hydrologic input from direct precipitation and runoff from the immediately surrounding landfill. First, there is no information describing the general depth of these ponds. Second, there is no explanation for why these ponds would remain isolated from the groundwater given the shallow nature of the water table. Although water level fluctuations have been shown to be relatively minimal (< 1 ft seasonal variation) according to water level variations last measured in 2008, it should be noted that more recently we have had more large-scale storm systems that may have had a greater influence on water table fluctuation and perhaps communication between the ponds and groundwater. Furthermore, the cross-sections indicate that the ponds are an expression of groundwater and lithologic data does not suggest a vertical barrier between the bottom of ponds and the surface aquifer. Please amend this inconsistency and incorporate the ponds in the overall hydrologic characterization of the site in terms of surface water/groundwater interaction.
3) Section 4.2 “Waste Materials” – page 81 – Earlier in the document, it is indicated that material from test pit excavations was returned to the excavation pits; however, it is unclear why material that was sampled and shown to reveal exceedences of contaminants of concern (e.g. TP-09) was returned to the landfill to provide a continual source to groundwater. Please provide a rationale for why material with known exceedences above remediation criteria was returned to the landfill instead of being properly disposed, especially when the major step of excavation was already completed.
4) Section 4.4.2 “Hunt Club Supply Well” – page 98 – It is unclear why HC-1 has not been assessed. This well appears to be one of the deepest wells in the area and may help to answer some lingering questions about characteristics of the clay layer. HC-1 also indicated that there are no contaminants of concern above screening criteria, which could be used to further substantiate not screening a well in the clay layer. Especially considering the discussion in Section 4.4.3 on page 99, that a well dated from 1962 may be HC-1 and provide a “a snapshot of water quality from the deep aquifer beneath the landfill.” Please make the necessary efforts to conduct a proper well assessment at HC-1. It is a relatively minimal effort and would help clarify the vertical source of the data retrieved from this well.
5) Section 4.6 “Surface Water” – page 101 – Similar to a comment above, the statement that a hydrological connection is not present between isolated ponds and the streams adjacent to the landfill is unwarranted. See comment above. There likely is a hydraulic connection based on the

evidence provided, and it is unclear how this conclusion is being formed. Please revise accordingly.

6) Section 5.2.1 "Constituent Sources" – page 118 – It is unclear why it is concluded "that only a small amount of industrial waste has been disposed of at the landfill," when multiple COCs above the nonresidential screening criteria remains undelineated laterally and vertical (see data gaps above). Soil data and contaminant concentrations throughout the landfill provide ample evidence of exceedences potentially related to industrial practices (e.g. SVOCs, PCBs, metals, ect…). This statement is unjustified and should be removed.
7) Section 5.2.2.2 "Groundwater" – page 121 – In the second paragraph it is concluded that contamination found in MW-3 is localized simply because MW-4 does not indicate similar contaminant concentrations. With reference to the data gap noted above, MW-4 is above 500 ft downgradient of MW-3 and separated by an unsampled surface water body. The next downgradient monitoring well is X-3, which was noted as a well that was not refurbished and is situated greater than 1000 ft downgradient of MW-3. Just to reiterate, a data gap exists and there is insufficient data to conclude that the contamination found at MW-3 is simply localized. There is a good chance that it migrates, and currently there are insufficient data to determine its migratory pathway. Please remove this statement.
8) Section 5.3 "Overview of the Landfill…" – page 126 – There are further conclusions in this section that the majority of waste is municipal and that limited waste is from industrial activities, however, there are widespread exceedences of VOCs, SVOCs, PCBs, pesticides, and inorganics. These contaminants can derive both from municipal and industrial processes and it is difficult to differentiate the particular process responsible for disposal of a particular contaminant. Thus, it is unclear why these conclusions are being made throughout the report. Please provide further justification or remove these statements.
9) Section 5.4 "Identification of data gaps…" –page 128 – If data gaps are going to be identified in the RI, please include the above mentioned data gaps so that we can be consistent as we move forward with the design phase. EPA agrees that additional surface water and groundwater elevation data should be collected as the project moves forward.

<u>Minor comments:</u>

1) For future report submittals, please print double-sided.